

No 83

on 6h

Feb 17th 1827
at 50 5th 6 Mrs Delany's

A Dissertation

Dated March 27th 1827
W. E. A

on

Percussion and Auscultation

by,

Thomas Johnson
of

Virginia.

St. Ignace, Mich.
Feb. 1880

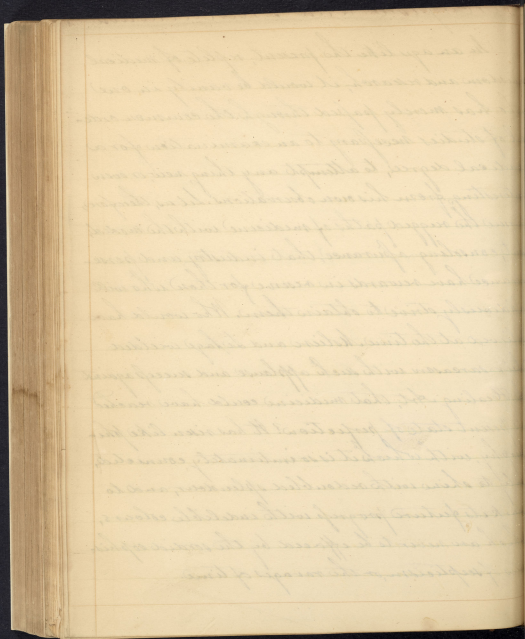
Dear Mr. [illegible]

Thank you for [illegible]

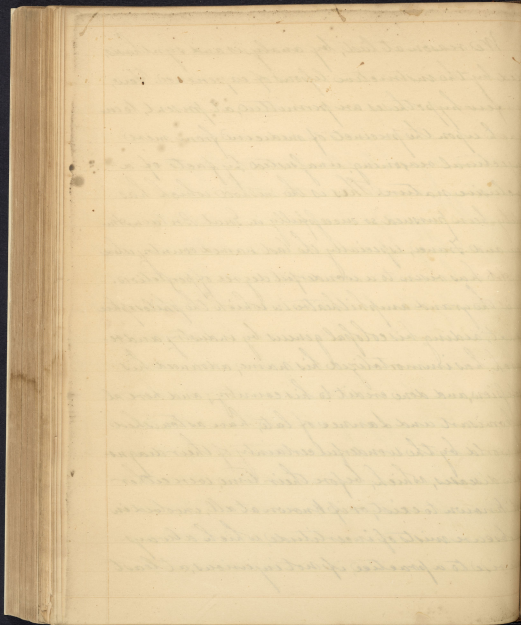
Yours truly
[illegible]

serpents and a noxious hum.

In an age like the present, replete of medical wisdom and research, it would be vanity in one who has merely passed through the common ordeal of studies necessary to an examination for a medical degree, to attempt any thing new, or even interesting, from his own observations. Let us, therefore, pursue the rugged paths of medicine with the modest, but, consoling assurance, that industry and perseverance have rewards in reserve for those who will assiduously strive to obtain them. Who would have believed at the time Moliere and La Sage wielded their sarcasm with such applause and success against the Healing Art, that medicine could have reached its present state of perfection? It has risen like philosophy, with which it is so intimately connected, only to shine with redoubled splendour, and to mark its future progress with indelible colours, which are never to be effaced by the sordid sophistries of scepticism, or the ravages of time.

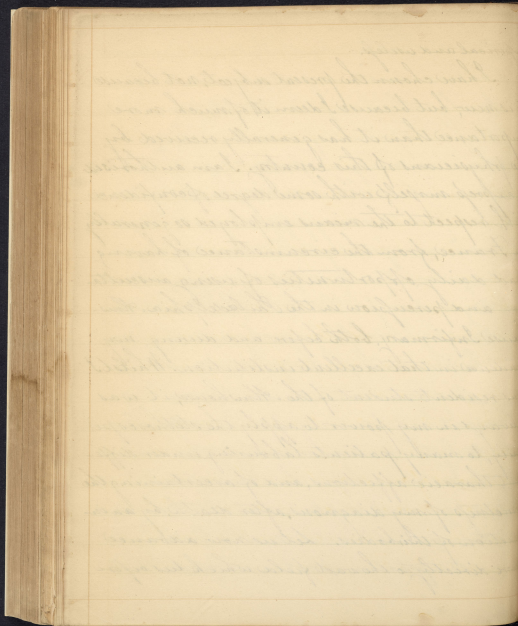


We reason at last, by analysis and synthesis,
aided by the instructive lessons of experience. Few,
very few hypotheses are permitted, at present, to en-
croach upon the precincts of medicine from mere
conjectural reasoning, unsupported by facts of a
conclusive nature. This is the method which has
lately been pursued so successfully in Great Britain, Am-
erica and France, especially the last named country, where
our Art has risen to a wonderful degree of perfection.
This is the grand amphitheatre in which the philosophic
Bic Lat, aiding his colossal genius by industry and re-
search, has immortalized his name, advanced his
profession, and done credit to his country; and here al-
so, Comisart and Lauree of late, have astonished
the world by the wonderful certainty of their diagno-
sis in diseases, which, before their time, were either
not known to exist, or if known at all, involved in
the obscure mists of uncertainty, which always
give rise to a practice, if not injurious, at least



empirical and useless.

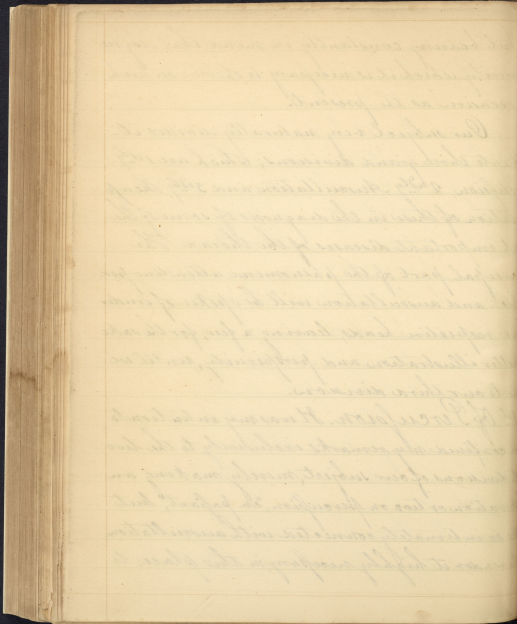
I have chosen the present subject, not because it is new, but because I deem it of much more importance than it has generally received by the physicians of this country. I am authorised to express myself with some degree of confidence with respect to the means employed so generally in France, from the circumstance of having had daily opportunities of using auscultation and percussion in the Philadelphia Almshouse Infirmary, both before and during my residence in that excellent institution. Whilst I was resident student of the Almshouse, it was always in my power to apply the stethoscope daily, to many patients labouring under different thoracic affections, and of ascertaining the correctness of my diagnosis, after death, by an inspection of their bodies. Let us now advance more directly to the vast field which lies before



and, but bearing constantly in mind, that degree of brevity which it is necessary to observe on such an occasion as the present.

Our subject very naturally divides itself into three grand divisions; which are 1stly, Percussion, 2ndly Auscultation, and 3rdly The application of these in the diagnosis of some of the most important diseases of the thorax. The principal part of the phenomena attending percussion and auscultation will be spoken of under their respective heads, leaving a few, for the sake of better illustration and perspicuity, until we come to our third division.

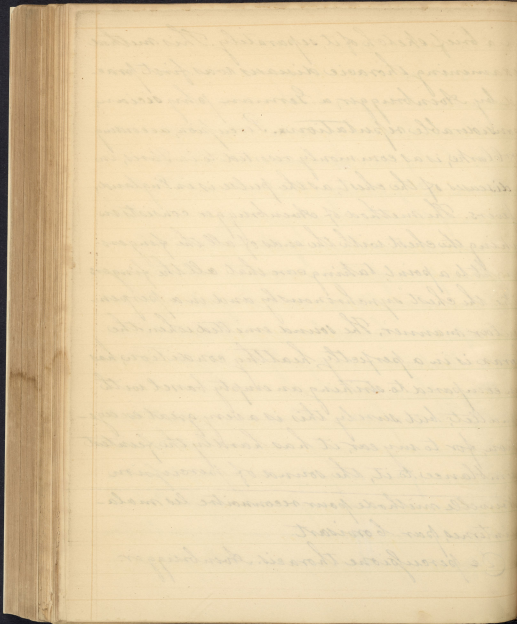
1st Of Percussion. It was my intention to have confined my remarks exclusively to the two last divisions of our subject, merely making an observation or two on percussion, "in passant," but it is so intimately connected with auscultation, as to render it highly necessary, in this place, to



give a brief sketch of it, separately. This method
of examining thoracic diseases was first prac-
tised by Auenbrugger, a German physician,
of considerable reputation. Percussion, according
to Dr Clarke, is as commonly resorted to in Paris, in
the diseases of the chest, as the pulse is in England,
in fevers. The method of Auenbrugger consists in
striking the chest with the ends of all the fingers
brought to a point, taking care that all the fingers
strike the chest synchronously and in a perpen-
dicular manner. The sound emitted, when the
thorax is in a perfectly healthy condition, has
been compared to striking an empty barrel with
a mallet; but surely this is a very great exage-
ration, for to my ear, it has hardly the faintest
resemblance to it, the sound of percussion

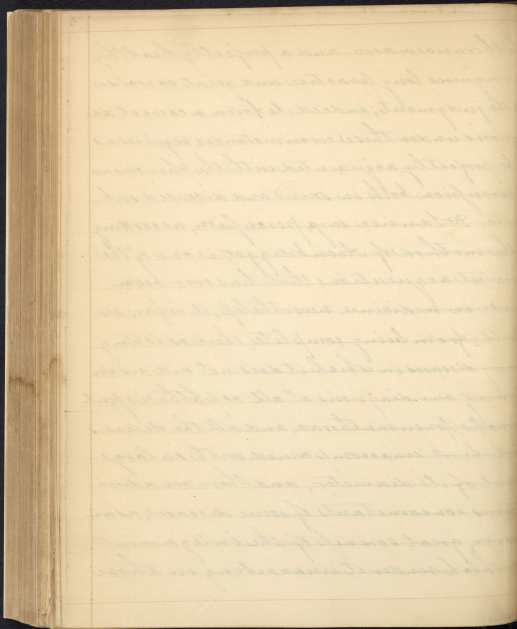
*Nouvelle methode pour reconnoitre les mala-
des internes, par Corvisart.*

De percussione thoracis. Auenbrugger.

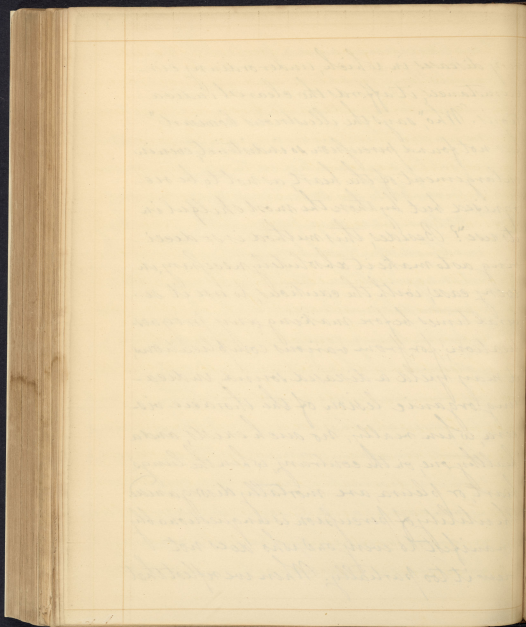


being a peculiarly indescribable one, which may easily be learned by those who will strike a sound chest a few times in the manner above described. If the chest be partially or entirely filled with a fluid, as serum or pus, or by a solid body, as a tumour, upon applying percussion, we perceive a dull, or "mat" sound, very much resembling that which is produced by striking the thigh, palm of the hand, or any other solid part of the body with the ends of the fingers collected together. The sound, as commonly sent forth, is either obscure, or clear, in proportion to the extent of the existing effusion. The sound is also commonly obscure over the diseased part, only, all the rest giving a clear resonance. In order to become well acquainted with the slight shades of difference which sometimes exists between a slightly diseased state of

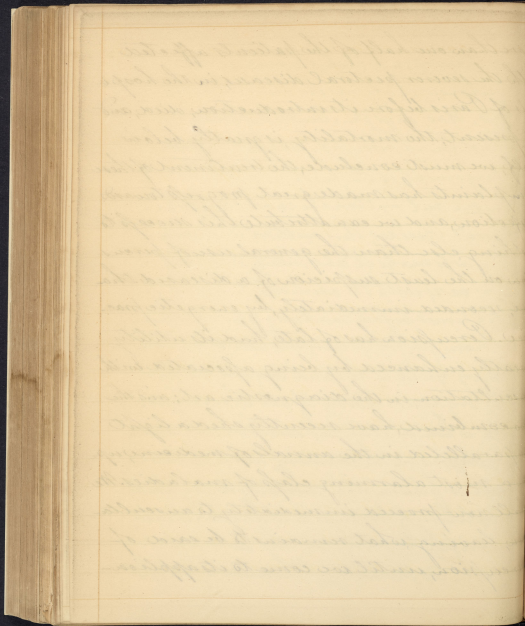
the thoracic viscera, and a perfectly healthy
one, requires long practice and great exercise
of the judgment; indeed, to form a correct di-
agnosis under these circumstances, requires us
to be perfectly acquainted with the phenomena
of percussion both in sound and diseased sub-
jects. Dr. Lennec says, percussion, according
to the method of Auenbrugger, is one of the
greatest acquisitions that has ever been
made in medicine: nevertheless, it is far, in
itself, from being complete, there existing
many diseases in which it does not aid us in
forming our diagnosis at all, as phthisis pul-
monalis, pneumo-thorax, and all the diseases
of the heart unaccompanied with enlar-
gement of its diameter; and there are adve-
rititious concomitants of some diseases, as an
abscess, great soreness of the integuments
&c. which render it unavailing in those



very diseases, in which, under ordinary circumstances, it affords the clearest indications. "Who," says the illustrious Boissier "has not found percussion so indistinct, even in enlargement of the heart, as not to be recognised but by those the most skilful in its use?" Besides, this method is so deceiving, as to make it absolutely necessary, in every case, with the cautious, to use it several times before making any prognostications; for, from various complications, it may yield a diseased sound, indicating organic lesion of the thoracic viscera, when really, no such exists, and a healthy one, on the contrary, when the lungs, heart, or pleura, are mortally disorganised. The utility of percussion is unquestionably manifest to every one who does not view it too partially. When we reflect that



more than one half of the patients affected
with the severer pectoral diseases, in the hospi-
tals of Paris before its introduction, died, and
at present, the mortality is greatly below
half, we must conclude, the treatment of these
complaints has made great progress towards
perfection, and we can attribute this success to
nothing else than the general use of percus-
sion on the least suspicion of a diseased tho-
rax, seconded immediately, by energetic prac-
tice. Percussion has of late, had its utility
greatly enhanced by being associated with
auscultation, in the diagnostic art; and the
two combined, have recently shed a light
unparalleled in the annals of medicine, up-
on a most alarming class of maladies. We
shall now proceed immediately to auscultation,
having what remains to be said of
percussion, until we come to its applica-



tion in conjunction with this very interesting and novel subject, to thoracic diseases.

2nd Of Auscultation. Auscultation is either immediate or mediate. Immediate auscultation consists in applying the ear to the breast, or any other part of the thorax, opposite the part we suspect to be diseased, or in which, we wish to ascertain any phenomenon of the internal structure. This plan has been long in use by some physicians in organic lesions of the heart, though I do not recollect that M. Corvisart, in his work, has made any mention of it. By this means, the diagnosis of certain obscure affections were more manifest, than merely by percussion, and the other guides, independent of its assistance; yet, all were uncertain and incomplete until M. Laennec, in the year 1816, applied mediate auscultation.

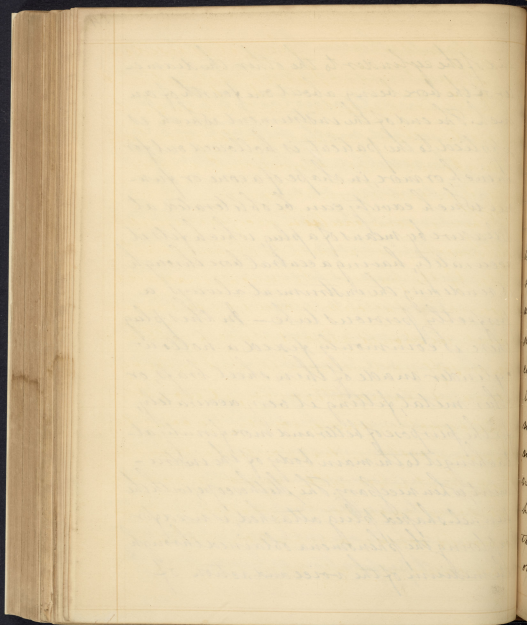
Mediate auscultation means nothing more than listening through some medium, instead of applying the ear directly to the thorax, which is often rendered inadmissible on account of the sex of the patient, or some other cause; when admissible, it affords no efficient phenomena, by which, we can form a correct opinion as to the nature, or progress of the complaint. The first patient, on whom Dr. Laennec tried mediate auscultation, was a young lady labouring under a diseased heart. It being a little disagreeable, in this case, to apply the ear, Dr. Laennec thought of a well known law of acoustics; namely, if one end of a piece of timber is scratched with a pin, by fixing the ear to the other, we hear the impression of sound, greatly augmented. Immediately the experi-

ment was made to see if this law of acous-
tics was invariable. - A quire of paper
was rolled up in a cylindrical form, and
Lamnee applied one end to the cardiac
region of the patient and the other to his
ear - He was very much pleased to find
he could perceive the action of the heart
much more distinctly than he had ever
been able to do before. From this time, com-
menced the experiments, which have, to
use the words of the author, "enabled us to
discover a set of new signs of the diseases
of the chest, for the most part certain, sim-
ple and prominent, and calculated, per-
haps, to render the diagnosis of the disea-
ses of the lungs, heart and pleura as de-
cided and circumstantial, as the in-
dications furnished to the surgeon by
the introduction of the finger or sound

in complaints wherein these are used." After variously contrived and multiplied instruments were tried to ascertain which conveyed the sound most distinct and augmented; the result was, that bodies of a moderate density, as a cylinder of light wood, answered the purpose much better than steel, brass, or any other very dense body. These experiments were so various, and the results so constant, as incontestably to give the wooden cylinder the preference.

It may not be improper in this place, to give a brief description of the cylinder, or as Laennec has named it, the *Stethoscope*, used by those who practice mediate auscultation. It consists of a hollow cylinder of light wood, from twelve to sixteen inches in length, and from an inch to an inch and a half in diameter. A perforation extends from one

end of the cylinder to the other, the diameter of the bore being about one fourth of an inch. The end of the instrument which is applied to the patient is hollowed out for an inch or more, in shape of a cone or funnel, which cavity can be obliterated at pleasure by means of a plug, which fits it accurately, having a central bore through it, rendering the instrument always a perfectly pervious tube. In this plug there is commonly fixed a hollow cylinder made of thin sheet brass, or other metal, fitting it very accurately, for the purpose of better and more firmly attaching it to the main body of the instrument, when necessary. The Sthenoscope, with the funnel-shaped plug attached, is used for exploring the phenomena obtained through the medium of the voice and action of

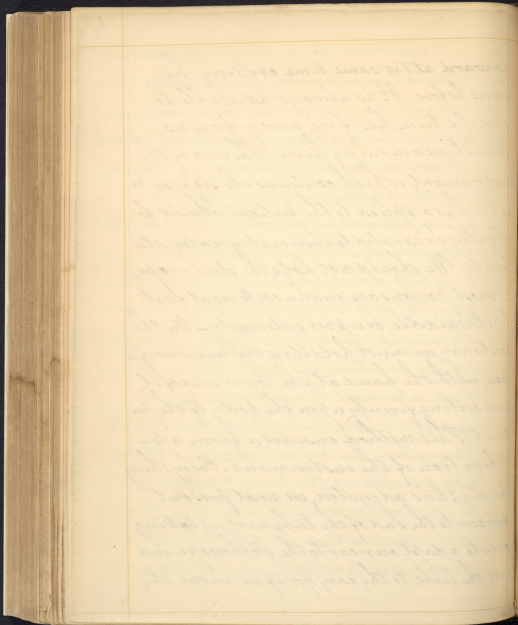


the heart; without the plug, it is used in exploring the phenomena of respiration. It may be divided into two parts, which can be screwed together at the will of the operator—this makes it a very convenient instrument, to be carried in the pocket.

There is some caution necessary in using the stethoscope, if we wish to obtain exact results. If the patient be much emaciated, as is generally the case when we use this instrument, we should always place a little cotton or soft wool between the end of the cylinder and thorax, otherwise, it would not fit correctly, and of course, we could not form a certain diagnosis. We should not apply it upon silk, paper, or any other hard substance, for the friction upon these, would convey a vibration, which might obscure entirely, or at least, complicate

the sound, emitted from the diseased organ, in such a manner as to render the diagnosis imperfect. The instrument should never be applied over thick clothing. There should be no noise in the vicinity of the patient, especially, no whispering in the room, for these obscure the sound conveyed through the tube in a greater or less degree, according to their intensity. In exploring the phenomena of the diseases of the chest, the patient should be seated, if possible, upon a stool, and always lean from us, except in exploring the upper part of the shoulder, when he must incline towards us. If the axilla is the part examined, his hands should be held over his head; if ^{the} back be the part subjected to the operation, the patient must bend

forward, at the same time, crossing his arms before. It is always advisable he should turn his face away from us whilst examining him. The end of the instrument which contains the stopper, & which is applied to the patient, should be slightly exeroated to insure its greater stability. We should not hold the stethoscope, as most persons are inclined to do at first, by its middle, or upper extremity - On the contrary, we must hold it in the manner of a pen, with the hand at the lower end of it, and resting firmly upon the body of the patient. This method ensures a firm application of the instrument. Everything being thus adjusted, we next present our ear to the end of the tube next us, taking care to adapt our ear to the stethoscope and not the tube to the ear, for if we move it,



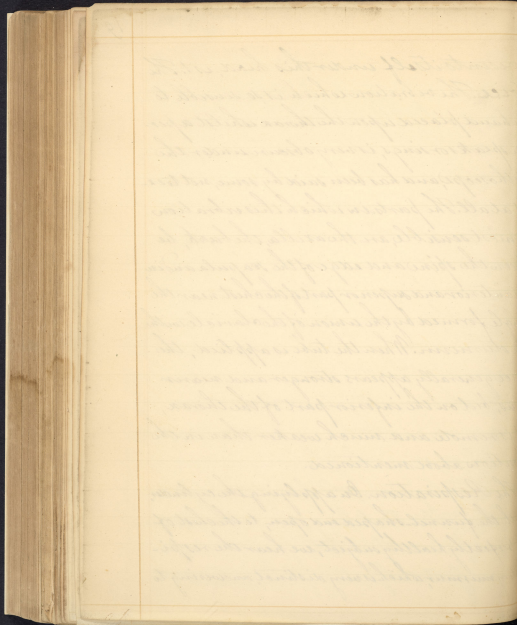
external sounds may enter, and convey
 us false impressions. Most of the indications
 afforded by the stethoscope are easily
 comprehended after once hearing them,
 but there are others, which require dil-
 igent practice with the instrument, to un-
 derstand correctly; such are haegophonism,
 the different species of rattle & all of which
 shall be noticed in due time.

The phenomena produced by the aid of
 the stethoscope I shall examine under the
 two heads of healthy, and diseased. Under the
 first, I shall investigate 1st the voice, 2nd the
 respiration, and 3rd the circulation—Under the
 first head, comes the phenomena called,
 1st pectoriloquism, 2nd haegophonism,
 3rd metallic tinkling, and 4th the va-
 rious kinds of rattle.

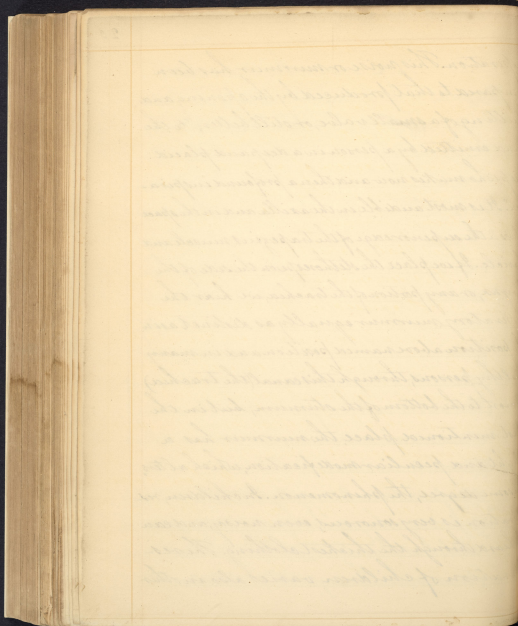
The first subject which naturally

presents itself under this head, is 1. The Voice. The vibration which is so sensible to the hand placed upon the thorax whilst a person speaks or sings, is very obscure under the stethoscope, and has been said by some, not to exist at all. The parts in which this vibration is most sensible, are the axilla, the back, between the spine and edge of the scapula and in the anterior and superior part of the chest near the angle formed by the union of the clavicle with the sternum. When the tube is applied, the voice generally appears stronger and nearer to us; but on the inferior part of the thorax, it is remote and much weaker than in the position above mentioned.

2 The Respiration. On applying the cylinder, with the funnel-shaped end open, to the chest of a perfectly healthy subject, we hear the respiratory murmur, which is very distinct, answering to



inspiration. This noise or murmur, has been compared to that produced by the opening and shutting of a small valve, or still better, "to the sound emitted by a person in a deep and placid sleep, who makes now and then a profound inspiration." It is most audible in the axilla and in the space between the superior edge of the trapezius muscle and clavicle. If we place the stethoscope on the side of the larynx, or any portion of the trachea, we hear the respiratory murmur equally as distinct as in the position above named position and in many healthy persons, through this canal (the trachea) almost to the bottom of the sternum; but in the last mentioned place, the murmur has a slight and peculiar modification, which alters, in some degree, the phenomenon. In children, respiration is very sonorous, even noisy, and can be heard through the thickest clothing. The respiration of children varies also in other



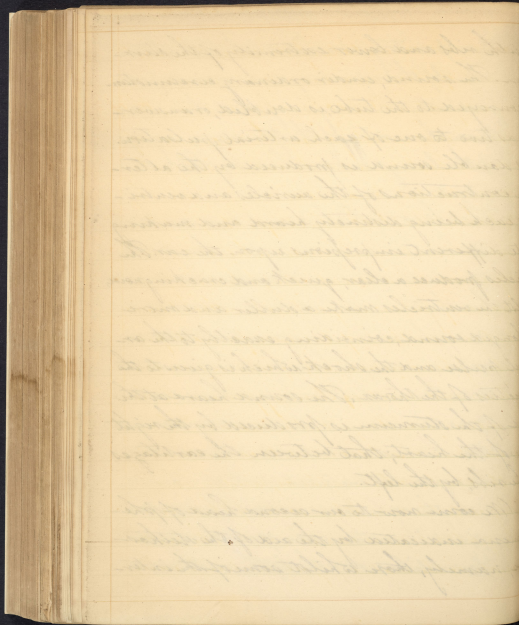
respects from that of adults; but these peculiarities are only to be acquired by comparing the two. But some adults enjoying perfect health have their respiration different from the majority of persons, particularly women of a nervous temperament, and preserving in other respects, the appearance of extreme juvenility. When the respiration resembles that of children, no matter at what age, it is denominated puerile or infantile. This is not caused by dyspnoea or asthma, for in patients labouring under such complaints, the respiration is entirely different from the puerile. External respiration's being loud, does not affect the respiratory murmur, for the external sound is made by the air's impinging upon the fauces. M. Saucier examined a patient at the Hospital Necker, whose habitual respiration could be heard at the distance of twenty feet, and found

the true respiratory murmur to be less than ordinary. If the respiratory murmur is perfectly distinct, we may be assured there is no effusion in the cavity of the pleura, or engorgement of the lungs or bronchiae, by blood, mucus, or pus.

3. The Circulation. I have but little to say of the heart in a state of health; never theless, I have thought the following considerations best to be made before I enter upon the diseases of that organ. If application is made of the stethoscope to the cardiac region of a healthy subject, with a well proportioned chest and heart, we hear the alternate contractions of the auricles and ventricles; but if the heart is not well proportioned, or is moved from its natural seat, it is heard, on applying the cylinder, without the cardiac region, that is, without the space included under the cartilages of the fifth, sixth and

seven the ribs and lower extremity of the sternum. The sound, under ordinary circumstances, conveyed to the tube, is doubled, or answering as two to one of each arterial pulsation. This double sound is produced by the alternate contractions of the auricles and ventricles, each being distinctly heard and making quite different impressions upon the ear. The auricles produce a clear, quick and cracking noise, whilst the ventricles make a duller and more prolonged sound, coinciding exactly to the arterial pulse and the shock which is given to the parietes of the thorax. The sound heard at the end of the sternum is produced by the right side of the heart; that between the cartilages of the ribs, by the left.

We come now to our second head of phenomena indicated by the aid of the stethoscope; namely, those whilst some of the inter-



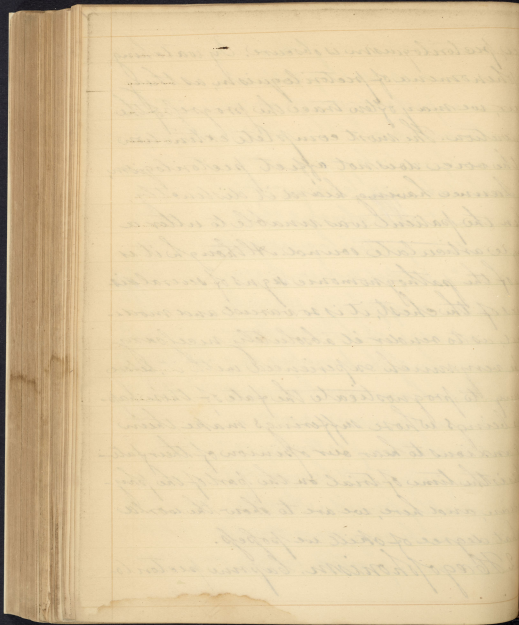
nal parts are in a state of disease. The most important of these and one which naturally strikes us first, is 1. Pectorilognism. Whilst Dr. Laennec was investigating the resonance of the voice in healthy and diseased subjects, he was surprised by a phenomenon entirely new to him. This took place, for the first time, in a female labouring under a bilious fever, accompanied by a recent cough having the appearance of pulmonary catarrh. About twenty of the patients in the hospital were found to produce this phenomenon, all of whom were consumptive, and most of them, appeared to be in an advanced stage of the disease. The voice in these cases seemed to come directly from the chest, entering the cylinder and passing on to the ear. When some of these unhappy patients were carried off by the natural course of the malady, post mortem exam-

inations from pectoriloquism, as had been
conjectured, to depend upon an excavation in
the substance of the lungs, communicating with
the broncheal tubes by one or more foramina.
Pectoriloquism is most distinct in persons ha-
ving a sharp voice, and in whose lungs, the
excavation adheres by its edges to the pleura;
but if the excavation be very deep seated and
the voice of the patient coarse, we hear pectoril-
oquism very indistinctly. If the tube is applied
to the trachea or larynx of a healthy person we
hear pectoriloquism as distinctly as in cases of
tuberculous excavation. This curious phenome-
non, generally, upon two or three trials, informs
us if there exists an excavation of the lungs
communicating with the bronchia. It is also
more distinct where there exists a small ex-
cavation, than in case of a very large one.
There is a kind of pectoriloquism, denominated

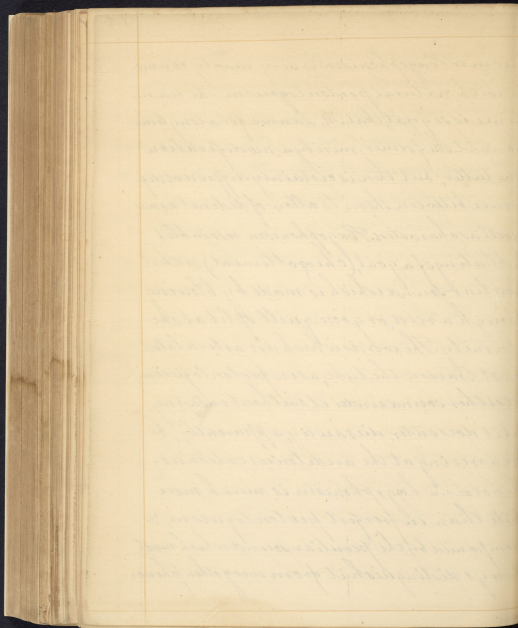
uncertain, which tends greatly to embarrass the inexperienced, when they first hear it. This uncertain pectorilognism is more acute than the certain, and a little altered, resembling the voice of ventriloquists, or rather, it resounds under the tube very loudly without entering and traversing it as is always the case in natural and certain pectorilognism. "We have," says Laennec, "a perfect notion of uncertain pectorilognism on applying the cylinder between the inner edge of the scapula and spine, opposite the origin of the bronchiae, in a healthy person that is lean and has an acute voice". If we examine thin and narrow chested children, we shall ascertain pectorilognism to exist in the above points, although their lungs may be perfectly sound. As above hinted, if the excavation be very considerable and deep-seated, accompanied with a deep toned

21
voice, pectoriloquism is obscure. By watching
the phenomena of pectoriloquism, as they
occur, we may often trace the progress of the
excavation. The most complete extinction
of the voice does not affect pectoriloquism,
M. Saenue having heard it distinctly,
when the patient was unable to utter a
single articulate sound. Although it is
one of the pathognomonic signs of several dis-
eases of the chest, it is so varied and mode-
fied, as to render it absolutely necessary
to be very much experienced with it, before
daring to prognosticate the fate of those hap-
less beings whose sufferings make them
all anxious to hear our opinion of their fate.
This is the time of trial on the part of the phy-
sician, and here, we are to show the world
what degree of skill we possess.

2. Haegophony, caprine pectorilo-

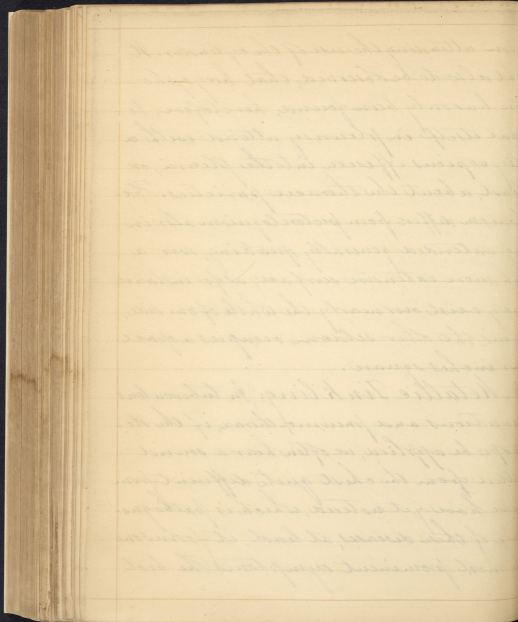


quism or Hægophonism is very nearly connected with natural pectoriloquism. The resemblance is so great, that M. Lænnæ for a long time thought the former merely a modification of the latter; but there is certainly sufficient difference between them, to allow of distinct names, as well as characters. Hægophonism resembles the bleating of a goat (*Chegottement*), or that peculiar sound which is made by blowing through a reed, or goose-quill split at one extremity. The words which are articulated do not traverse the tube, as in pectoriloquism, but either sound under it without entering, or if it does enter, dies away, apparently, before arriving at the auditorius externus. The voice in hægophonism is much more acute than in perfect pectoriloquism, & is accompanied by the peculiar sound which must always distinguish it from every other phæno-

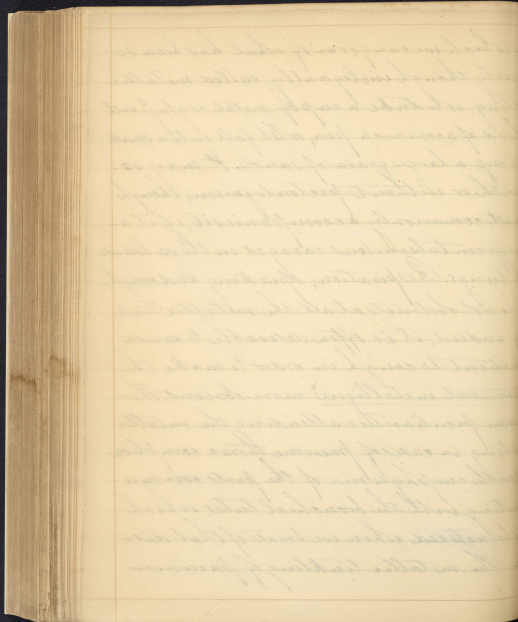


menor attending the use of the cylinder. It ought also to be observed, that hægophos-
isism has only been found, heretofore, to
present itself in pleurisy attend with a
pretty copious effusion into the pleura, or
at least, about the thoracic parietes. Hæg-
ophosism differs from pectoriloquism also in
being extended, generally speaking, over a
much more extensive surface; as for instance,
it may exist over nearly the whole of one side,
whereas, the other seldom occupies a space
of two inches square.

3. Metallic Tinkling. In tuberculous
excavations and pneumothorax, if the ste-
thoscope be applied, we often hear a sound
united from the chest quite different from
any we have yet noticed, which is pathogno-
monic of these diseases, at least, it forms one
of the most prominent symptoms. The best



idea which we can form of what has been so
properly, though inelegantly, called metallic
tinkling, is to strike a cup of metal, or glass, with
the head of a common pen, or let fall into a small
glass cup, a large grain of sand. It may ex-
ist with or without pectoriloquism, though
it most commonly accompanies it, if it ar-
ises from tuberculous ravages in the substance
of the lungs. Respiration, speaking and cough-
ing do not obstruct at all the metallic tink-
ling; indeed, it is often desirable to cause
the patient to cough in order to make the
"tintement metallique" more obvious. There
are some peculiarities attending the metallic
tinkling in cases of pneumo. thorax complica-
ted with emphysema of the parts commu-
nicating with the bronchial tubes, which
will be noticed when we treat of that dis-
ease. The metallic tinkling of pneumo-



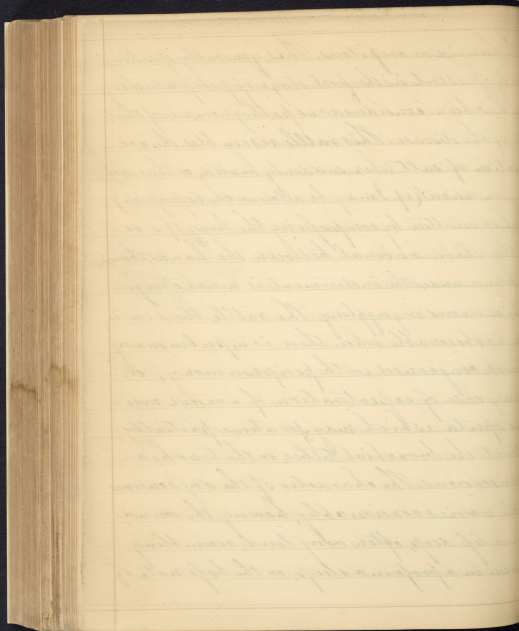
thorax may be distinguished from that of tuberculous excavations, by its being more intense. The quantity of tuberculous matter in a pulmonary abscess may also vary the intensity of tinkling, by being diminished in proportion to the quantity of matter present.

4. Rattles. The various kinds of rattle, which are audible under the stethoscope, tend to produce some confusion, and are certainly more difficult to be understood by the tyro, than any of the preceding diseased phenomena. I think it probable, though I have but little experience to support the supposition, M. Laennec has made the rattle more complicated than necessary. The different kinds of rattle which we shall notice are, the humid or crepitous, the mucous or gurgling, the dry sonorous and the dry sibilous or hisping, rattle.

1. The humid or crepitous. This, generally speaking, is only present in the first stage of peripneumony, and has been considered as pathognomonic of that state of the disease. This rattle resembles the cre-pitation of salt when suddenly heated, or the crackling sensation (if I may be allowed the expression) which is emitted by compressing the lung of a recently slain animal between the hands, though, the sound under the instrument is much stronger.

2. The mucous or gurgling. The rattle thus entitled, is observable when there is a pulmonary catarrh conjoined with peripneumony; or, in any case of expectoration of a viscid mucous spittle which may, for a time partially, obstruct the bronchial tubes, or the trachea.

3. Dry sonorous. The character of the dry sonorous rattle varies considerably, having the sound more or less deep, often very loud, resembling a person in a profound sleep, or the bass note of



a musical instrument, or "the cooing of a wood-pigeon". This last is sometimes so striking, that M. Larree says the physician can hardly conceive that there is not one of those birds concealed under the patient's bed-clothing. The most common site of the dry sonorous rattle, is in pulmonary fistulae & dilated bronchiae.

4. The dry sibilous or hisping, like the third species of rattle, is very much varied in its character - "Sometimes it is like a prolonged whisper of various intonations; at others, cut short and emitting chirps like a small bird; sometimes, it resembles the separation of two oil-stones; and again, we hear a sound resembling the opening and shutting of a small valve." A noise is occasionally heard like the bursting of soap bubbles, when the cylinder is fixed opposite the large bronchial tubes or the trachea. The four kinds of rattle give

as a better assurance of the existence of pulmonary catarrh than any other symptoms can possibly afford, for all the other symptoms are fallacious, but it is presumed, the different rattles, especially the two last, never are.

This finishes what I have, at present, to say of auscultation, which, it will be remembered, is the second head of my dissertation. What remains to be said of auscultation, will be considered in the third division, in account of which, I now proceed to give.

3rd. Of the Application of Percussion and Auscultation as Diagnostic Signs in the Diseases of the Thorax.

In speaking of the application of percussion and auscultation, I shall hardly be able to do that justice which the importance of the subject demands, for I have already entered farther into the investigation of some of the foregoing particulars than

1st first intended. I shall now, taking into consideration the copious manner in which I have treated the two former divisions, restrict my third as much as perspicuity will permit. The diseases of the chest will be arranged according to the organs in which they are located; and these appear evidently to be 1st. Of the diseases of the lungs, 2nd. Of the pleura, and 3rd. Of the heart.

1st. Of the diseases of the lungs. Every one who is at all conversant with the diseases of the pulmonary apparatus must be immediately struck with the great frequency and fatality of phthisis pulmonalis; indeed, it has been very justly said to be one of the opprobria medicorum, when we reflect that of the immense number of persons afflicted with it, very few, if any, ever recover. Who engaged in an extensive practice has not

often lamented the unhappy and inevitable doom of the person who is gradually, but surely, wasting away, day by day, under this intractable distemper?—

— And down he sinks amid the pitiless drift
Thinking o'er all the bitterness of death. Thompson.

Notwithstanding the acknowledged fatality of phthisis pulmonalis, we once more, since the application of mediate auscultation, begin to entertain the flattering hope, that it yet is to be more correctly understood, and that we may be enabled to prescribe for it, in the early stages, with as much certainty of relief as in most other diseases which afflict the human family. Though we are so sanguine in our expectations of future good, neither percussion or mediate auscultation, as yet, afford us always indications of incipient phthisis. If incipient tubercles are congrega-

ted, then percussion by the dull sound, and the stethoscope, by the absence of respiration, together with other combined symptoms, afford us the clearest indications of the danger which is to be apprehended. Should we be so fortunate as to detect phthisis pulmonalis in this stage, I entertain not the least doubt, we may, to say the least, avert the impending storm for months, and even years: but unfortunately, the complaint is so insidious and hope so long sustains the sinking sufferer, that our advice is never sought until an excavation has taken place, together with expectoration, hectic fever, and other formidable appearances. After these symptoms supervene, all we can reasonably expect to do, is, to palliate and moderate according to present exigencies. If pectoril-ogism exists on the application of the cy-

hinder, we have no reasonable grounds to hope for ultimate recovery, though we should proceed on the same principles as if we had, for, by so doing, we moderate the violence and smooth the rugged avenues of death, which is a matter of no small importance in the practice of our profession.

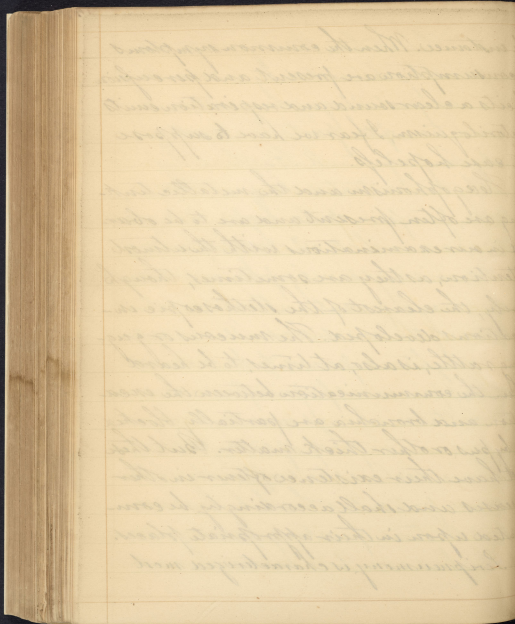
Although the superior lobes are the most common seat of tuberculous abscesses, we must not confine our examinations to them alone, for it sometimes happens, as I have seen on one occasion myself, in post mortem examination, the excavation is near the apex of the lung; and as we said when treating of auscultation, we must not be content with a single examination, but repeat it until we have every rational reason to be satisfied, for sometimes the tubercle has not bursted into the bronchia,

and even when it has, this aperture may
be temporarily obstructed by tuberculous
matter, and pectoriloquism must, under
this condition of the parts, be absent or ex-
tremely imperfect. M. Bayle in his work,
has fully demonstrated the fact, that cough,
dyspnoea, puriform sputa, hectic fever, ema-
ciation, and in short, all the symptoms of
phthisis, arising merely from nervous af-
fections, may be present, without the actual
existence of the true disease. We are not
at this enlightened period to be deceived
by such appearances, for percussion and medi-
ate auscultation always serve to guide us
correctly; and as a proof of this assertion,
Dr. Laennec declares, out of nearly three
hundred patients which he had exam-
ined at the time of writing his ingenious
book, he had never been deceived in a sin-

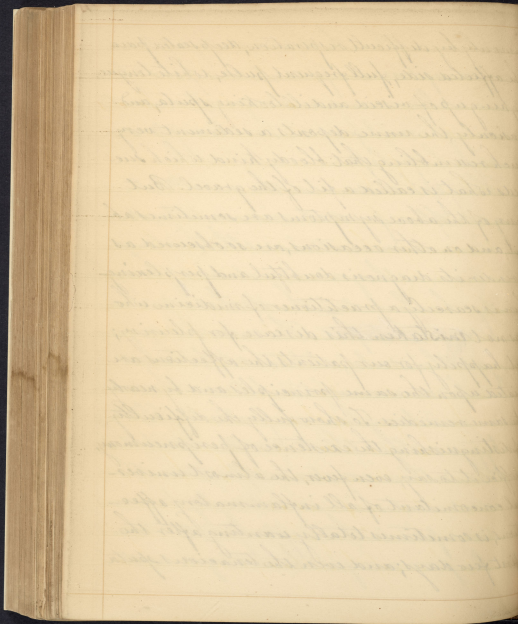
of instance. When the common symptoms of consumption are present and percussion elicits a clear sound and respiration emits pectoriloquism, I fear we have to suppose the case hopeless.

Ragophonism and the metallic tinkling are often present and are to be observed in our examinations with the utmost attention, as they are sometimes, though rarely, the clearest of the stethoscopic indications developed. The mucous or gurgling rattle, is also, at times, to be heard when the communication between the excavation and bronchia are partially blocked up by pus, or other thick matter. But these last have their existence often in other diseases and shall accordingly be commented upon in their appropriate places.

Peripneumony is characterized most

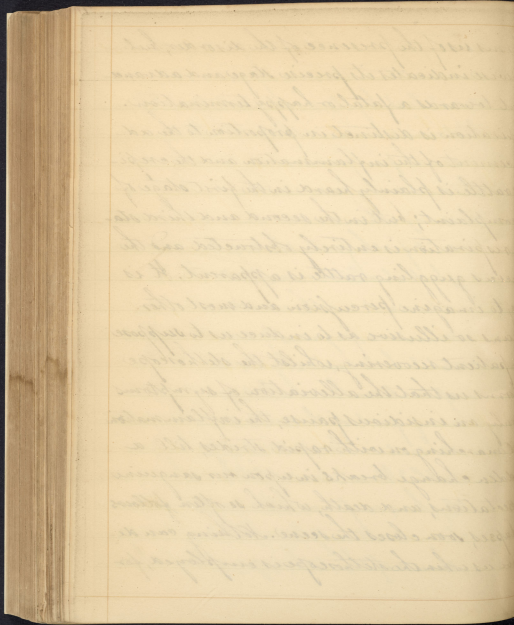


commonly by difficult respiration, deep seated pain
in the affected side, full frequent pulse, white tongue,
bringing up of viscid and ill looking sputa, and
occasionally, the urine deposits a sediment very
much resembling that bloody kind which suc-
ceeds what is called a fit of the gravel. But
many of the above symptoms are sometimes ab-
sent, and on other occasions, are so obscured as
to render its diagnosis doubtful and perplexing.
There is scarcely a practitioner of medicine who
has not mistaken this disease for pleurisy;
but happily for our patients, the affections are
treated upon the same principles and by nearly
the same remedies. To show fully the difficulty
of distinguishing the existence of peripneumony,
suffice it to say, even fever, the almost univer-
sal concomitant of all inflammatory affec-
tions, is sometimes totally wanting after the
first few days; and even the tenacious sputa



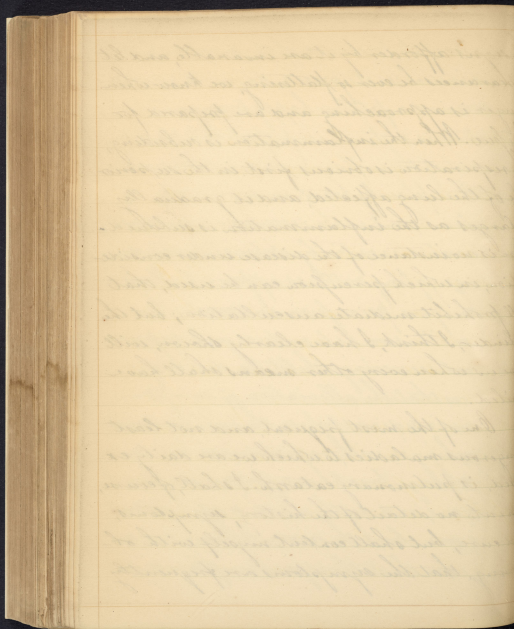
may become, towards the latter part of the disease,
so thick as not to be thrown up and consequently
the patient lost by its accumulation. Percus-
sion afflicts us, now and then, in chronic, as
well as acute peripneumony, and could it
be applied in every case, we should have no
need for any other means than the dull sound
which is sent forth from the region of the affec-
ted lung; but it also occasionally leaves us as
much in the dark as the common symptoms
do, because we are frequently not called to the
patient until he is entirely too sore to bear
such an operation. Now what are we to do
when the chief part of the common symptoms
are either absent or obscured and percussion is
unattainable? We are to resort to a resource, which
fortunately, has, as far as observation extends,
no objections to its employment—This expe-
dient is the use of the stethoscope, which not only

informs us of the presence of the disorder, but likewise indicates its precise stage and advancement towards a fatal or happy termination. Respiration is distinct in proportion to the advancement of the inflammation and the crepitous rattle is plainly heard in the first stage of the complaint; but in the second and third stages, respiration is entirely obstructed and the mucous gurgling rattle is apparent. It is easy to imagine percussion and most other means so illusive as to induce us to suppose our patient recovering, whilst the stethoscope informs us that the alleviation of symptoms is only an insidious pause, the inflammation still marching on with rapid strides, till a sudden change breaks in upon our sanguine expectations, and death, which so often follows relapses, soon closes the scene. Nothing can deceive us when the stethoscope is employed, for

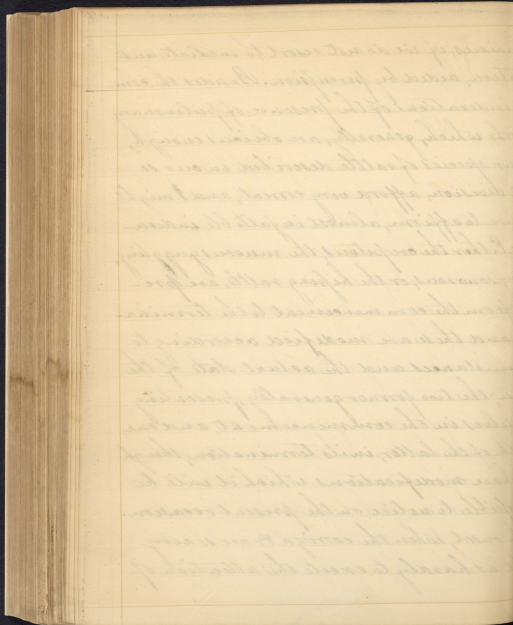


the signs afforded by it are invariable, and let
appearances be ever so flattering, we know when
danger is approaching and are prepared for
the issue. When the inflammation is subsiding,
the respiration is obvious first, in the superior
lobe of the lung affected, and it gradually
enlarges as the inflammation is subdued.
There is no instance of the disease under consid-
eration, in which percussion can be used, that
will prohibit mediate auscultation; but the
cylinder, I think, I have clearly shown, will
serve us when every other means shall have
failed.

One of the most frequent, and not least
dangerous maladies, to which we are daily ex-
posed, is pulmonary catarrh. I shall, of course,
run into no detail of the history, symptoms,
and cure, but shall content myself with ob-
serving, that the symptoms are frequently

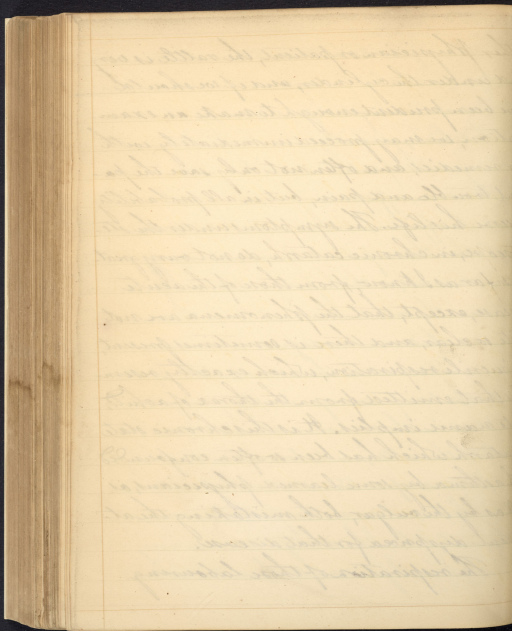


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fallacious, if we do not resort to immediate aus-
cultation, aided by percussion. Besides the com-
mon indications of the presence of pulmonary
catarrh, which, generally, are obvious enough,
the four species of rattle described in our se-
cond division, afford very correct, and I might
venture to affirm, almost infallible indica-
tions. Either the crepitous, the mucous gurgling,
the dry sonorous, or the hisping rattle are pre-
sent from the commencement to the termina-
tion, and these are modified according to
circumstances and the actual state of the
disease, the two former generally presenting
themselves in the commencement, and one,
or both of the latter, in its termination, though
these have modifications which it will be
impossible to notice on the present occasion.
At the onset, when the coughs &c. are so very
slight as hardly to excite the attention of

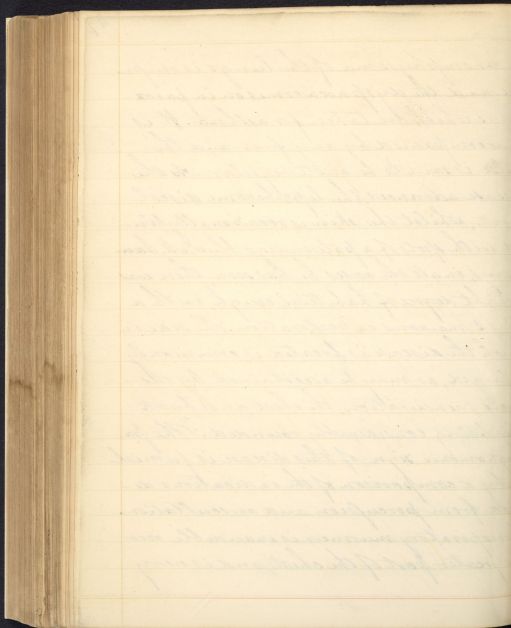


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either physician or patient, the rattle is very
loud under the cylinder, and if we should
have been prudent enough to make an exam-
ination, we may proceed immediately with
our remedies, and often not only save the pa-
tient trouble and pain, but in all probability
preserve his life. The symptoms under the ste-
thoscope, in chronic catarrh, do not vary great-
ly, so far as I know, from those of the acute
disease, except, that the phenomena are not
quite so clear, and there is sometimes present,
the puerile respiration, which exactly resem-
bles that emitted from the thorax of a child,
as its name implies. It is this chronic state
of catarrh which has been so often confounded
with asthma by some learned physicians, as
well as by the vulgar, both mistaking the at-
tendant dyspnoea for that disease.

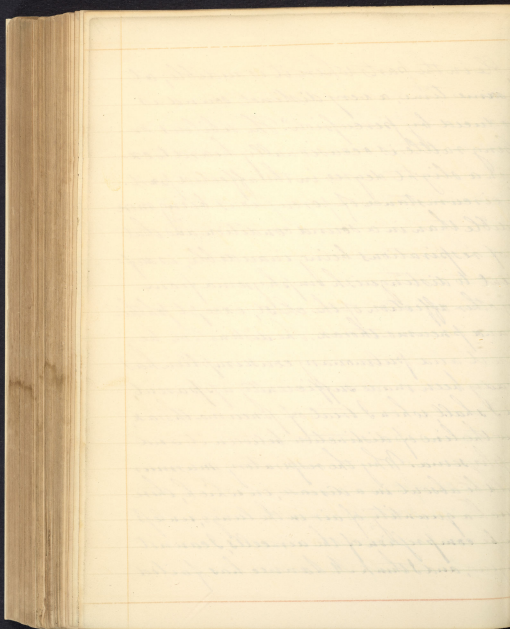
The respiration of those labouring



under emphysema of the lungs is impeded and the dyspnoea comes on in paroxysms which are taken for asthma. It is unaccompanied by any fever and the pulse is said to be quite regular. As the disease advances the lips become discoloured, whilst the skin is occasionally tinged with spots of a pale indigo blue. M. Saucy says, in all the cases he has seen, there was a slight degree of habitual cough, with a slight mucous expectoration. The side in which the disease is located is commonly enlarged, as may be ascertained by thoracic mensuration, the chest, and back also, being considerably rounded. "The pathognomonic sign of this disease is furnished by a comparison of the indications derived from percussion and auscultation. The respiratory murmur is inaudible over the greater part of the chest, and is very

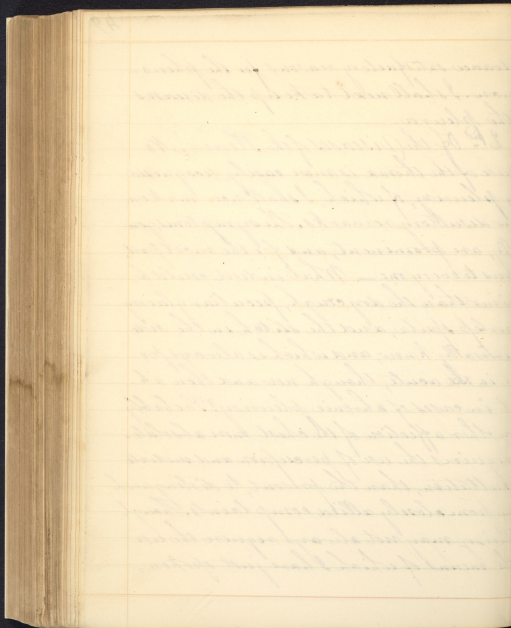


feble in the parts where it is audible; at the same time, a very distinct sound is produced by percussioⁿ. The sibilous or hisping rattle is occasionally heard to exist in a slight degree in the affected part. The circumstance of percussioⁿ's being more audible than in a sound condition, and that too, of respirations being inaudible, is sufficient to distinguish emphysema from any other affection of the chest, except pleth^{is}is and pneumo-thorax. The distinction between it and pulmonary consumption has already been made sufficiently apparent, and I shall, when I treat of pneumo-thorax, draw the line of distinction between it and emphysema. Why the respiratory murmur should be absent in a disease, in which, there is such a quantity of air in the lungs, unless there be compression of the air-cells, I cannot imagine, and I think M. Lannee has failed

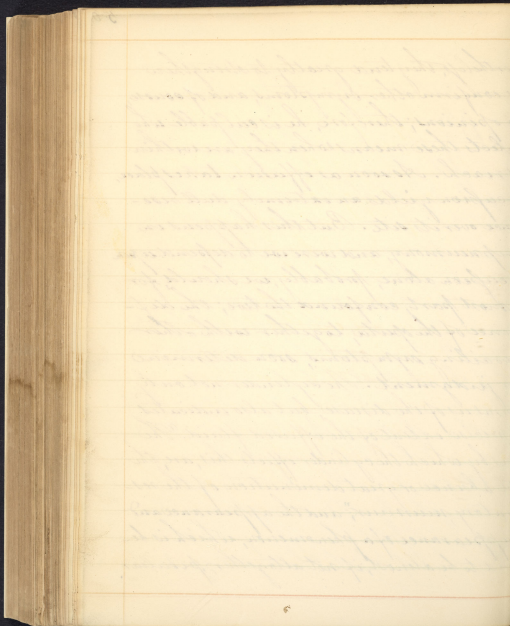


to advance satisfactory reasons for the phenomenon. I shall next take up the diseases of the pleura.

2nd Of the Diseases of the Pleura. No disease of the thorax is more easily recognised than pleurisy, of which, I shall now make a few desultory remarks. The symptoms, generally, are prominent, and for the most part, obvious to every one. — What indeed could be plainer than the dry cough, peculiar glairy colourless sputa, and the stitch in the side universally known, and which is always present in ~~the~~ acute, though now and then, absent in cases of chronic pleurisy? Probably every other affection of the chest more absolutely requires the use of percussion and mediate auscultation, than the present, to distinguish them from closely allied complaints. Though pleurisy may not always require the use of the means of which I have just spoken,

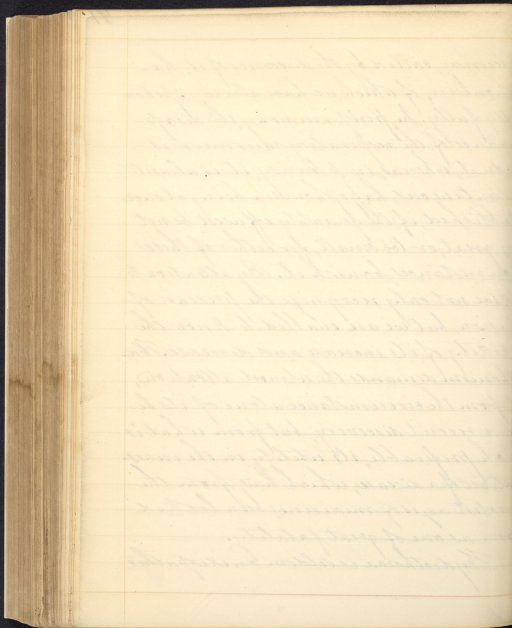


nevertheless, they tend greatly to strengthen and confirm other symptoms, and of course, our opinions; therefore, he is culpable who neglects these means when they are within his reach. As soon as effusion takes place, percussion yields an extremely dull resonance over its site. But this happens in peripneumony, and were we to depend upon percussion alone, probably, we should, for the most part, confound the two; the difference of the sputa, together with other prevailing symptoms, soon determine our judgment. The cylinder not only informs us of the disease, but also indicates the precise extent of the effused fluid. "The signs by which the cylinder effects this, are, the total absence or great diminution of the respiratory murmur;" and the appearance and disappearance of a phenomenon, which is believed to be almost, if not altogether, peculiar.

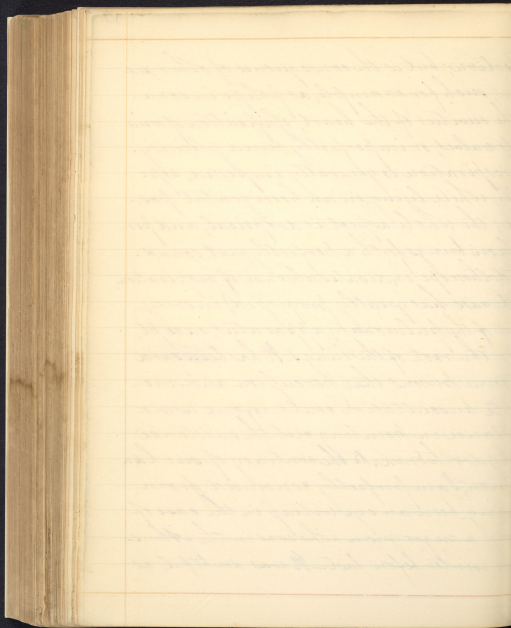


to pleurisy, called by the discoverer of it, ha-
 gophonism, of which, we have already spoken
 pretty fully. In peripneumony, the disap-
 pearance of the respiratory murmur is
 gradual, whereas, in pleurisy, it is almost
 instantaneous, hagophonism being at once
 established, if the quantity effused be not
 very great, or too small, for either of these
 circumstances banish it. By attention to
 this, we not only recognize the presence of
 effusion, but we are enabled to know the
 rapidity of its increase and decrease. Ha-
 gophonism demands the utmost attention,
 not from the circumstance alone of its be-
 ing a recent discovery, but from what is
 much preferable, its utility, in the inves-
 tigation of a disease, which has from the
 remotest ages of medicine, been looked
 upon as one of great fatality.

Hydrothorax is seldom an idiopathic

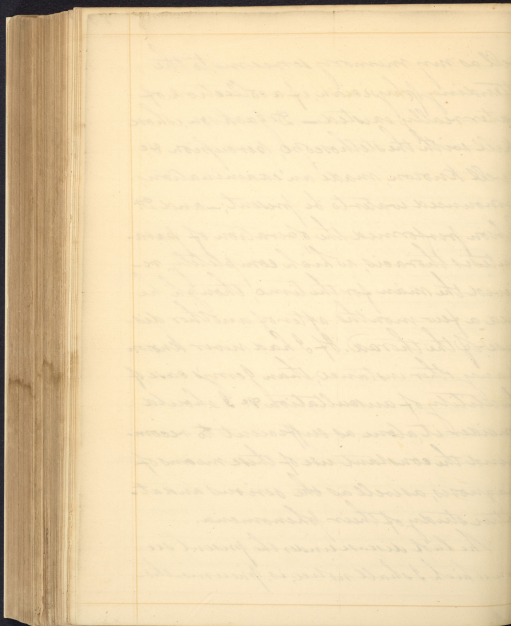


affection, but is the consequence of other diseases, such for example, as polypi in some of the cavities of the heart, ossification of some of its valves, or imperfectly cured pleurisy. The respiration is generally impeded, especially while lying in an horizontal posture; the whole aspect is dropsical, and percussion brings forth a perfectly mat sound. The stethoscope indicates absence of respiration, (if the case has greatly progressed) in every part of the pulmonary apparatus, except, near the root of the lungs. It has been said by some persons, that percussion and mediate auscultation could afford us no assistance in pointing out the existence of hydrothorax: to the contrary of such an opinion, I am perfectly convinced, from having been an eye witness in the case of Jerry, a negro man who was in the Almshouse winter before last. It was doubtful, as

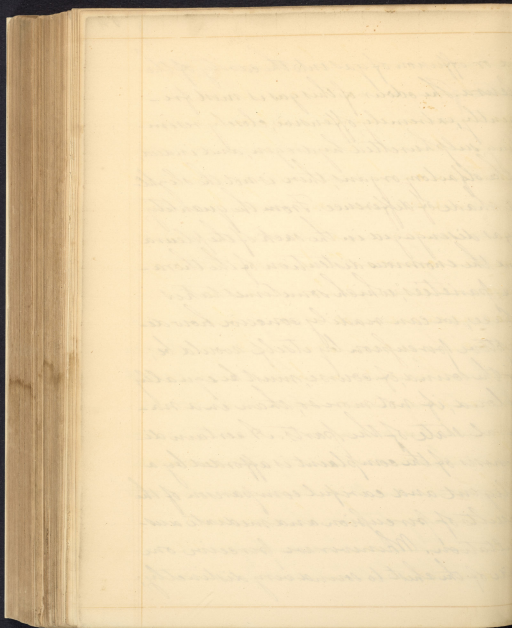


well as my memory serves me, to the attending physician, if a collection of water really existed. Dr Jackson, whose skill with the stethoscope, percussion &c is well known, made an examination, pronounced water to be present;—and Dr Gibson performed the operation of paracentesis thoracis, which completely relieved the man for the time, though he died a few months after of another disease of the thorax. If I had never known of any other instance, than Jerry's case of the utility of auscultation &c I should consider it alone as sufficient to recommend the constant use of these means of diagnosis, as well as the serious and attentive study of their phenomena.

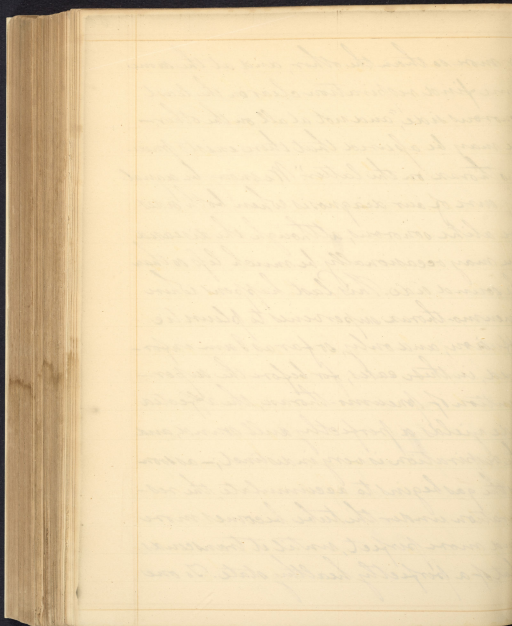
The last disease under the present section which I shall notice, is, pneumo-tho-



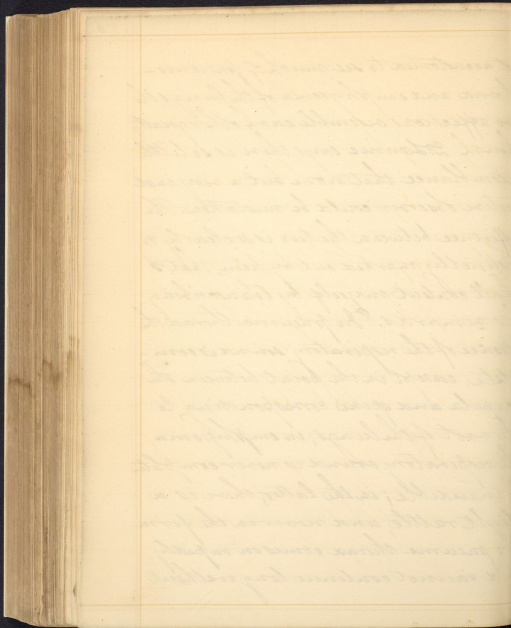
rax or effusion of gas into the cavity of the
 pleura. The odour of this gas is most fre-
 quently, extremely offensive, closely resem-
 bling sulphuretted hydrogen, and indeed,
 to the olfactory organs, there is not the slight-
 est shade of difference. From the quantity
 of gas disengaged in the sack of the pleura
 and the enormous distention of the thora-
 cic parietes, which sometimes takes
 place, we can readily conceive how de-
 ceptive percussion by itself would be;
 for the sound, of course, must be equally
 as loud, if not more so, than in a na-
 tural state of the parts. A certain di-
 agnosis of the complaint is afforded by a
 diligent and careful comparison of the
 results of percussion and mediate aus-
 cultation. Whenever we perceive one
 side of the chest to sound very distinctly,



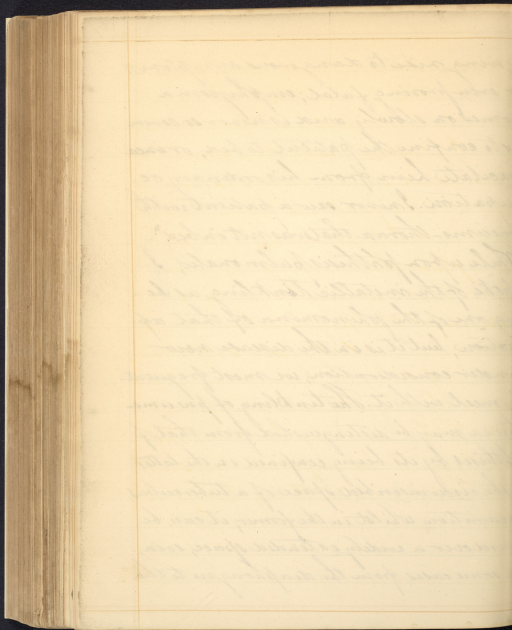
or more so than the other, and at the same time find respiration clear on the least sonorous side, "and not at all on the other, — we may be assured that there exists pneumothorax on the latter." We may be equally sure of our diagnosis when both sides are alike sonorous, although the diseased one may occasionally be much less so than the sound side. This last happens when pneumothorax supervenes to pleuritic effusion, and only, so far as I am informed, in these cases; for before the super-vention of pneumothorax, the affected side yields a perfectly dull sound, and the respiration is very indistinct; — as soon as the gas begins to accumulate, the respiration under the tube becomes more and more perfect, until it transcends that of a perfectly healthy state. To one



not accustomed to see much of pneumo-
thorax and emphysema of the lungs, the
two affections resemble each other greatly,
though Dr. Lenné says there is so little
resemblance that none but a very inat-
tentive observer could be mistaken. The
difference between the two is so clearly &
distinctly marked out by him, that I
shall content myself by transcribing
his remarks. In pneumo-thorax, the
absence of the respiratory sound is com-
plete, except in the point between the
scapula and spine corresponding to
the root of the lungs; in emphysema,
the respiratory sound is never complete-
ly inaudible; in the latter, there is a
slight rattle, and never in the form-
er: pneumo-thorax comes on rapidly,
and cannot continue long without

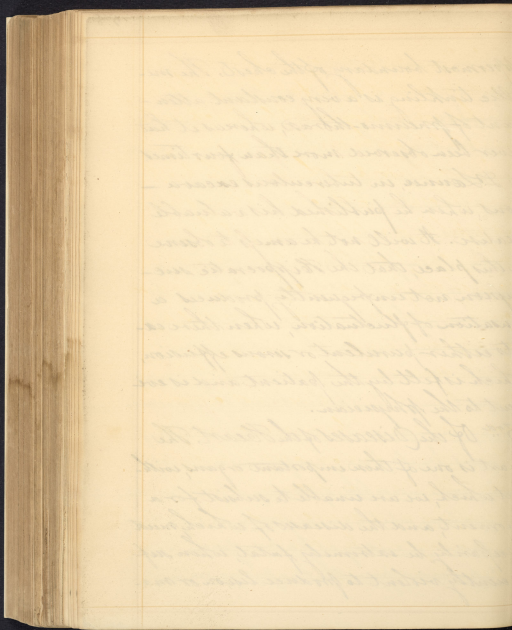


giving rise to dangerous symptoms, or even proving fatal; emphysema comes on slowly and is never so severe as to confine the patient to bed, or incapacitate him from his ordinary occupation. I never saw a patient with pneumo-thorax that was not in bed". While upon phthisis pulmonalis, I spoke of the metallic tinkling as being one of the phenomena of that affection, but it is in the disease now under consideration, we most frequently meet with it. The tinkling of pneumo-thorax may be distinguished from that of phthisis by its being confined in the latter to the circumscribed space of a tuberculous excavation, whilst in the former, it can be heard over a widely extended space; even, in some cases, from the diaphragm to the



uppermost boundary of the chest. The metallic tinkling is a very constant attendant of *pneumo-thorax*, whereas it had never been observed more than four times, by *L. Leunee*, in tuberculous excavations, when he published his valuable treatise. It will not be amiss to observe in this place, that the Hippocratic succussion not infrequently produces a sensation of fluctuation, when there exists either purulent or serous effusion, which is felt by the patient and is evident to the physician.

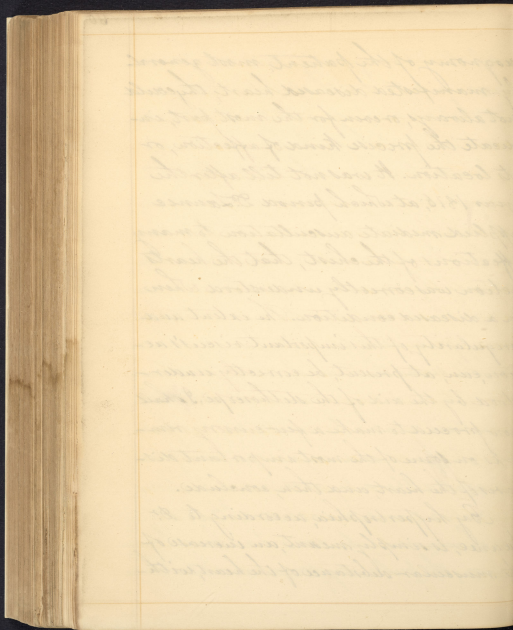
3rd Of the Diseases of the Heart. The heart is one of those important organs, without which, we are unable to subsist for a moment, and the diseases of which, must necessarily be extremely fatal, when sufficiently violent to produce lesion or ma-



terial alteration of structure. It may be advanced in support of the fatality of these diseases, that we are immediately struck with the mortality of the maladies recorded in M. Corvisart's work on the heart. The heart being the centre of the circulating fluids, and possibly, of vitality also (if it has a centre,) must continue to be looked upon as one of the primary objects of our care. Though the importance of this viscus has been appreciated by enlightened physiologists, since the time of the great Harvey, yet, its disorders were not correctly understood, until Corvisart, by his patient diligence and sagacious perception, elucidated them by accurate dissections, observations, and deductions. But still much remains to be done; for though palpitation, the pulse, dyspnoea, and the phy-

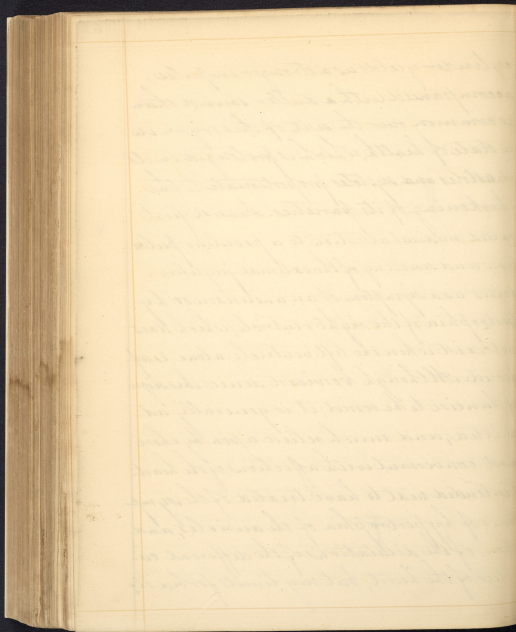
diagnosis of the patient, most generally manifested diseased heart, they could not always, or even for the most part, indicate the precise kind of affection, or its location. It was not till after the year 1816, at which period Dr. Laennec applied mediate auscultation to many affections of the chest, that the heart's action was correctly understood when in a diseased condition. The extent and irregularity of this important viscus's action, can, at present, be correctly understood by the aid of the stethoscope. I shall now proceed to make a few cursory remarks on some of the most important diseases of the heart, and then, conclude.

By hypertrophia, according to Dr. Laennec, is simply meant, an increase of the muscular substance of the heart, with-



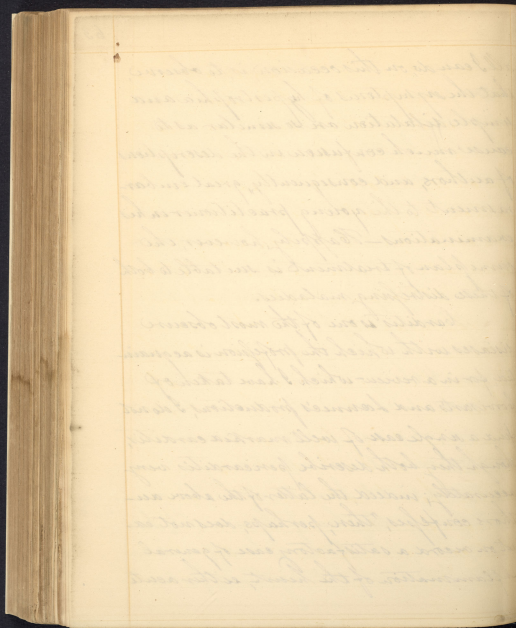
out a proportionate dilatation of its cavities, or there may be even a diminution of them. He affirms, that this disease has escaped the notice of Corvisart, though he in another part of his work, confesses M. Corvisart has very accurately described hypertrophia of the left ventricle of the heart under the title of active aneurism. In reading M. Corvisart's chapter on active aneurisms of the heart, every one must be struck at once, with the fact, that he means, nearly, if not the very same thing by this appellation as Lennec does, when he speaks of hypertrophia. Besides the symptoms of this affection so accurately laid down by Corvisart, percussion and auscultation render us others more certain; for, if the heart be greatly enlarged, percussion is mat over its whole extent and the

cylinder yields us a stronger impulse, accompanied with a duller sound than is common over the seat of this organ in a state of health, which is prolonged in its diastoles and systoles proportionate to the thickening of its parietes. Lancisi first called medical attention to a peculiar pulsation and swelling of the external jugular veins as a symptom of an aneurism or hypertrophia of the right ventricle, which does not exist when the left ventricle alone is affected. Although Corvisart denies this sign of Lancisi to be correct, it is generally admitted, and much relied upon by those most conversant with affections of the heart. I intended next to have treated of the symptoms of hypertrophia of the auricle, and then, of the dilatations of the different cavities of the heart, but my limits forbid it;



all I can do, on this occasion, is, to observe, that the symptoms of hypertrophia and simple dilatation are so similar as to cause much confusion in the descriptions of authors, and consequently, great embarrassment to the young practitioner in his examinations—Happily, however, the same plan of treatment is suitable to both of these distressing maladies.

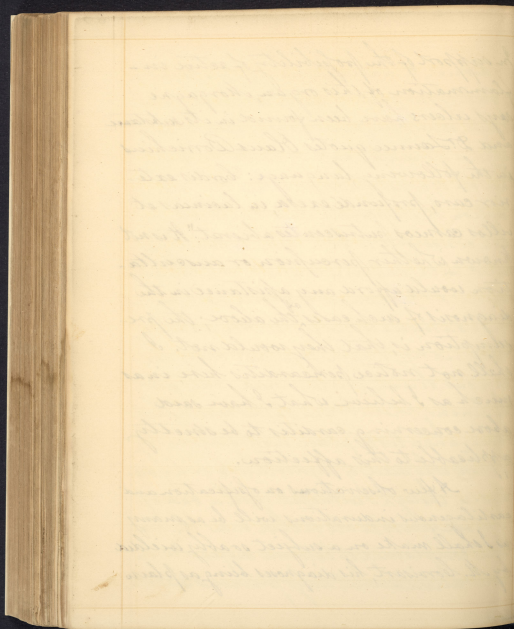
Carditis is one of the most obscure diseases with which the profession is acquainted, for in a review which I have taken of Boissart and Laennec's productions, I do not find a single case of well marked carditis, though they both describe pericarditis very accurately; indeed, the latter of the above authors confesses, "then, perhaps, does not exist on record a satisfactory case of general inflammation of the heart, either acute



or chronic." It was with no inconsiderable
 degree of surprise to me to see such persons
 as these confessing their never having wit-
 nessed a genuine case of carditis, for I
 have on several occasions had the satis-
 faction of inspecting hearts, which I
 then conceived to have been violently af-
 fected with inflammation. While as-
 sisting Dr. Jackson in making post mor-
 tem examinations in the Alms house
 Infirmary, I have seen, not only the
 pericardium inflamed but also
 the lining membrane of the heart. This
 appearance took place most frequently
 in those who died of hydrothorax or hydro-
 cardia, though I witnessed it ^{once} in a case of
 typhoid fever. In all of these cases the pa-
 tients complained of extreme difficulty in
 respiration several days previous to death.

In support of the possibility of active inflammation of this organ, Morgagni says ulcers have been found in its substance, and Dr. Saunee quotes Olaus Porrichius in the following language: "Cordis exterior caro, profundè exesa, in lacinias et villos carnicos putrescentes abierat." It is not known whether percussion or auscultation would afford any assistance in the diagnosis of such cases ^{as} the above; the presumption is, that they would not. I shall not notice pericarditis here, in as much as I believe what I have said above concerning carditis to be strictly applicable to this affection.

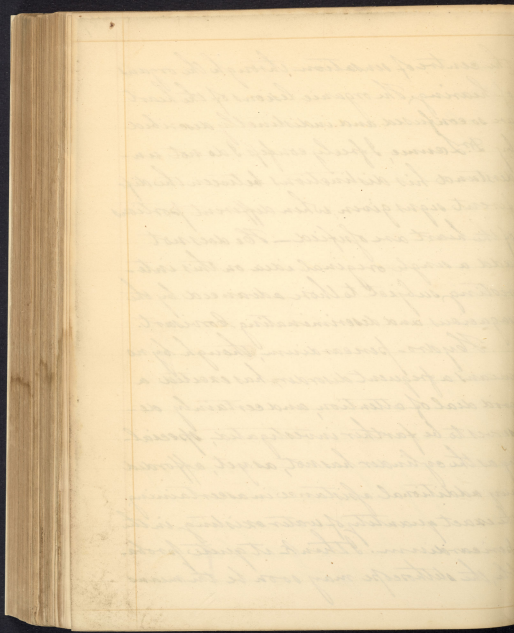
A few observations on ossification and cartilagenous indurations will be as many as I shall make on a subject so ably wielded by M. Corvisart, his diagnoses being as plain



as they possibly could be on diseases, like the present under consideration, without the aid afforded by mediate auscultation. There is a symptom almost always attending ossification of the mitral valve, noticed and very greatly relied on by the distinguished author above cited, which ought to be very closely attended to when we suspect a disease of any portion of this organ — According to him, the principal sign of this lesion, is, "a peculiar rustling sensation, perceived on the application of the hand to the region of the heart." This sensation Laennec has, I conceive, very inappropriately compared to the purring of a cat when pleased; now I cannot imagine how a sensation conveyed to us through the medium of touch can have the least resemblance to one conveyed to

the centre of sensation through the organs of hearing. The organic lesions of the heart are so confused and indistinctly described by Dr. Laennec, I freely confess I do not understand his distinctions between the different signs given, when different portions of the heart are ossified. He does not add a single original idea on this interesting subject to those advanced by the sagacious and discriminating Corvisart.

Hydro-pericardium, though by no means a frequent disorder, has excited a good deal of attention, and certainly deserves to be farther investigated, especially as the cylinder has not, as yet, afforded any additional assistance in ascertaining the exact quantity of water existing in the pericardium. I think it quite probable, the stethoscope may soon be the means



of throwing a light around this subject, involved in much obscurity, though its eminent discoverer has not derived any assistance from its use in hydro-pericardium.

From what has been advanced on the diseases of the heart, it will readily be perceived, the cylinder fails as a diagnostic means in some of its most interesting diseases; notwithstanding this, every impartial person must acknowledge its utility in some of them, and the possibility of its rendering the most obscure diseases, more intelligible than they have hitherto been.

